ORDER NO. SD81061923C8

Service Manual

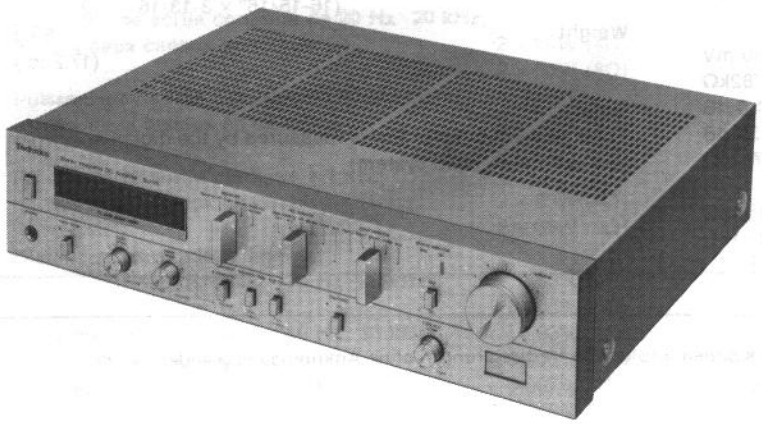
Stereo Integrated DC Amplifier

SU-V5

〔E〕,〔EG〕,〔EK〕,〔EF〕,〔EH〕,
〔EB〕,〔Ei〕,〔XA〕,〔XL〕

SU-V5 (K)

〔E〕,〔EG〕,〔EK〕,〔EH〕,
〔Ei〕,〔XA〕



* The cabinet and front panel are available in black color and silver types.
* The black type model is provided with (K) in the Service Manual.

Areas

* [E] is available in Scandinavia and Switzerland.
* [EG] is available in F.R. Germany.
* [EK] is available in United Kingdom.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [Ei] is available in Italy.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [XL] is available in Australia.

English

Specifications

(Specifications are subject to change without notice for further improvement.)

(DIN 45 500)

■ AMPLIFIER SECTION

20 Hz~20 kHz continuous power output	
both channels driven	2 × 60W (4Ω)
	2 × 60W (8Ω)
40 Hz~16 kHz continuous power output	
both channels driven	2 × 60W (4Ω)
	2 × 60W (8Ω)
1 kHz continuous power output	
both channels driven	2 × 65W (4Ω)
	2 × 65W (8Ω)
Total harmonic distortion	
rated power at 20 Hz~20 kHz	0.03% (4Ω)
	0.005% (8Ω)
rated power at 40 Hz~16 kHz	0.03% (4Ω)
	0.005% (8Ω)
rated power at 1 kHz	0.007% (4Ω)
	0.003% (8Ω)
half power at 20 Hz~20 kHz	0.007% (8Ω)
half power at 1 kHz	0.003% (8Ω)
−26 dB power at 1 kHz	0.05% (4Ω)
50 mW power at 1 kHz	0.08% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz=4:1, 4Ω	0.03%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.007%
Power bandwidth	
both channels driven, −3 dB	
	5 Hz~40 kHz (4Ω THD 0.03%)
	5 Hz~35 kHz (8Ω THD 0.02%)
Residual hum and noise	0.5 mV
Damping factor	20 (4Ω), 40 (8Ω)

Input sensitivity and impedance	
PHONO MM	2.5 mV/47kΩ
MC	170 μV/220Ω
TUNER, AUX	150 mV/22kΩ
TAPE 1 REC/PLAY	180 mV/27kΩ
TAPE 2	150 mV/22kΩ
PHONO maximum input voltage (1 kHz, RMS)	
MM	150 mV
MC	10 mV
S/N	
rated power (4Ω)	
PHONO MM	79 dB (IHF, A: 86dB)
MC	67 dB (IHF, A: 68dB)
TUNER, AUX	89 dB (IHF, A: 100 dB)
−26 dB power (4Ω)	
PHONO MM	70 dB
MC	63 dB
TUNER, AUX	70 dB
50 mW power (4Ω)	
PHONO MM	67 dB
MC	63 dB
TUNER, AUX	68 dB
Frequency response	
PHONO	RIAA standard curve
	±0.5 dB (30 Hz~15 kHz)
TUNER, AUX, TAPE	2 Hz~120 kHz (−3 dB)
	+0 dB (20 Hz~20 kHz)
	−0.2 dB (20 Hz~20 kHz)

Continued on page 2

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ BEFORE REPAIR AND ADJUSTMENT

Turn off the power supply and short-circuit both ends of power supply condensers (C601, C602, 8200μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage. Avoid short-circuit with a screwdriver or the like, otherwise the transistors or diodes may break down.
Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a voltage regulator to make sure that the current consumed is free of abnormality. The current consumed at 60Hz/50Hz in no-signal mode is shown below with respect to supply voltage 110V/120V/220V/240V.

Power supply voltage		AC 110V	AC 120V	AC 220V	AC 240V
Current consumed	50Hz	260 ~ 520mA	250 ~ 500mA	140 ~ 270mA	130 ~ 250mA
	60Hz	250 ~ 500mA	240 ~ 480mA	130 ~ 250mA	120 ~ 240mA

■ ADJUSTMENT POINTS

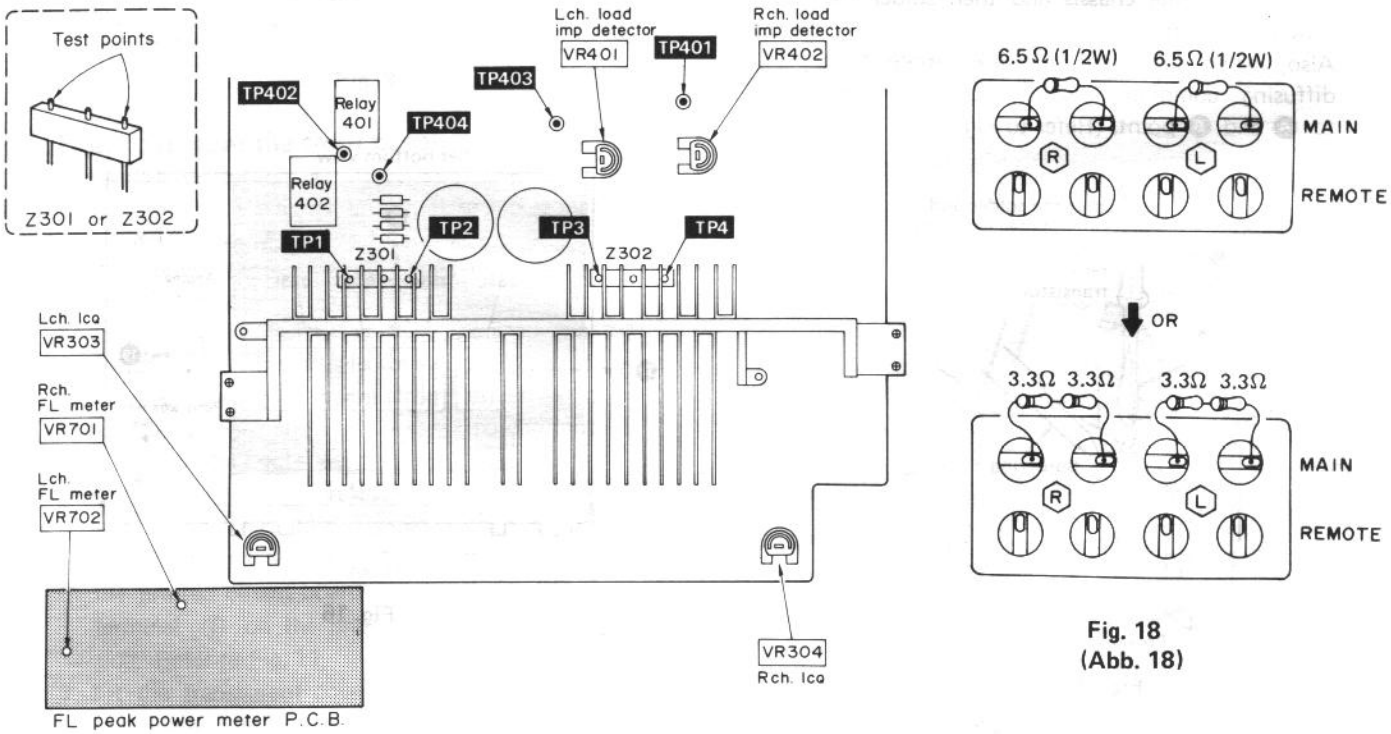
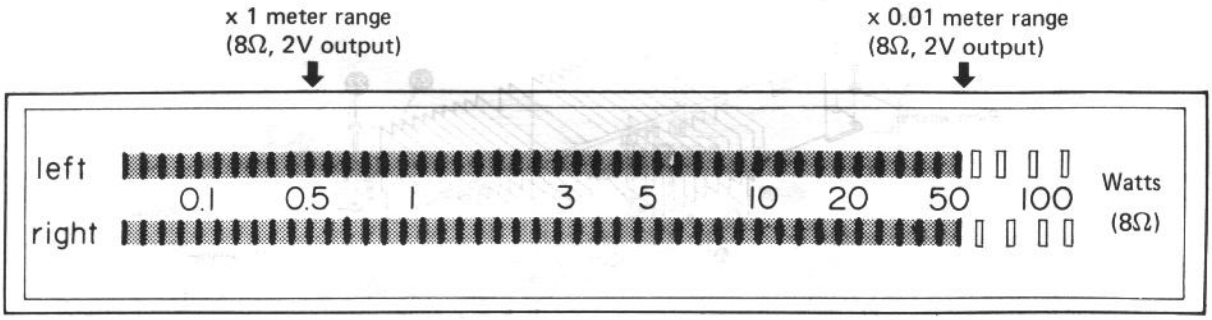


Fig. 18
(Abb. 18)



FL peak power meter

Fig. 19 (Abb. 19)

■ MEASUREMENTS AND ADJUSTMENTS ——— English

1. Load impedance detection and idling current of power transistor (ICQ)

• Setting and instruments used

1. Operation switch . . . . . straight DC
2. Speaker selector . . . . . main
3. Sound volume . . . . . 0 (minimum)
4. DC voltmeter (able to measure 4mV)
5. Instruments for circuit operation check
   (AC voltmeter, 1kHz oscillator, 8Ω load, 5W 0.33Ω resistor, 1/2W 6.5Ω or 3.3Ω & 3.3Ω)

Item	Connection of DC voltmeter	VR adjusted	Adjustment
Adjustment of load impedance detection circuit	*Connect a load with 6.5Ω (1/2W carbon resistor) or series-connected 3.3Ω and 3.3Ω (1/2W, ±5%) to the "main" speaker terminal. (Fig. 18) *Connect a DC voltmeter between TP401 and chassis.	VR402	*Connect TP402 and TP404 *Completely turn VR401 and VR402 anticlockwise beforehand. *Adjust VR402 so that the voltage of TP401 is −0.1V. *Adjust VR401 so that the voltage of TP402 is 0V.
	*Connect a load with 6.5Ω (1/2W carbon resistor) or series-connected 3.3Ω and 3.3Ω (1/2W, ±5%) to the "main" speaker terminal. (Fig. 18) *Connect a DC voltmeter between TP403 and chassis.	VR401	
Adjustment of ICQ	L channel Connect voltmenter to TP1 (+) and TP2 (−)	VR303	① Completely turn VR303 and VR304 anticlockwise beforehand ② Adjust VR303 (L channel) and VR304 (R channel) so that the voltage is 20mV, about 10 min. after power supply ON.
	R channel Connect voltmeter to TP3 (−) and TP4 (+)	VR304	

2. Fluorescent peak power meter

Setting

- Connect a low frequency oscillator to the tuner input terminal, and 8-ohm load resistor and AC electronic voltmeter to the speaker terminal.
- Add 1kHz signal from the low frequency oscillator to the set.
- Set the sound volume to the maximum point.

Item	Meter range select switch position	VR adjusted	Adjustment
Peak-power indicators	Range switch ... X0.01	VR702 (L ch)	1. Adjust the input level so that the AC voltmeter indicates 2 volts.
		VR701 (R ch)	2. Adjust the semi-fixed variable resistors VR702 (L ch.) and VR701 (R ch.) so that the 50W segment of FL meter lights up dimly. (Fig. 19)

3. Check points

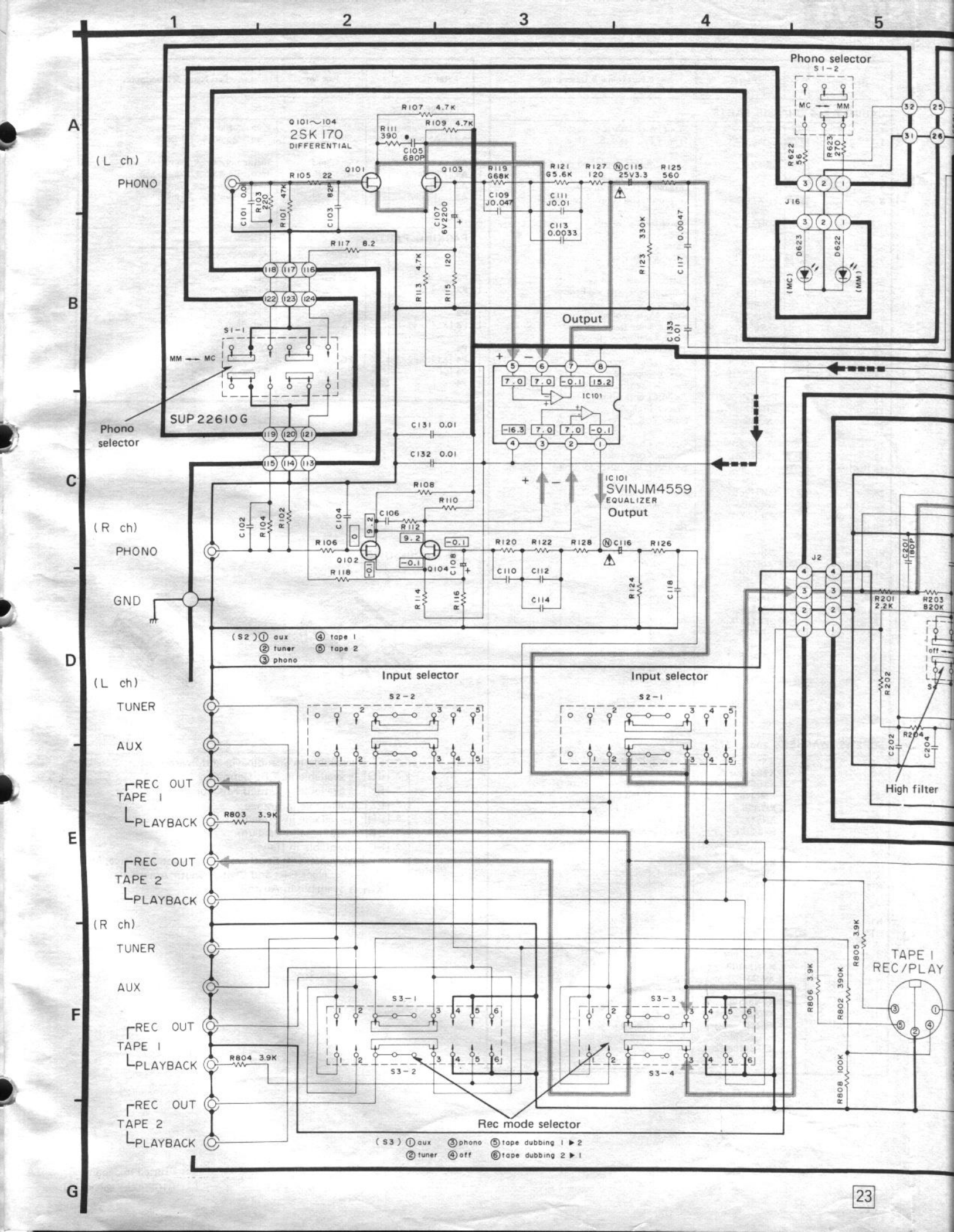
• DC balance

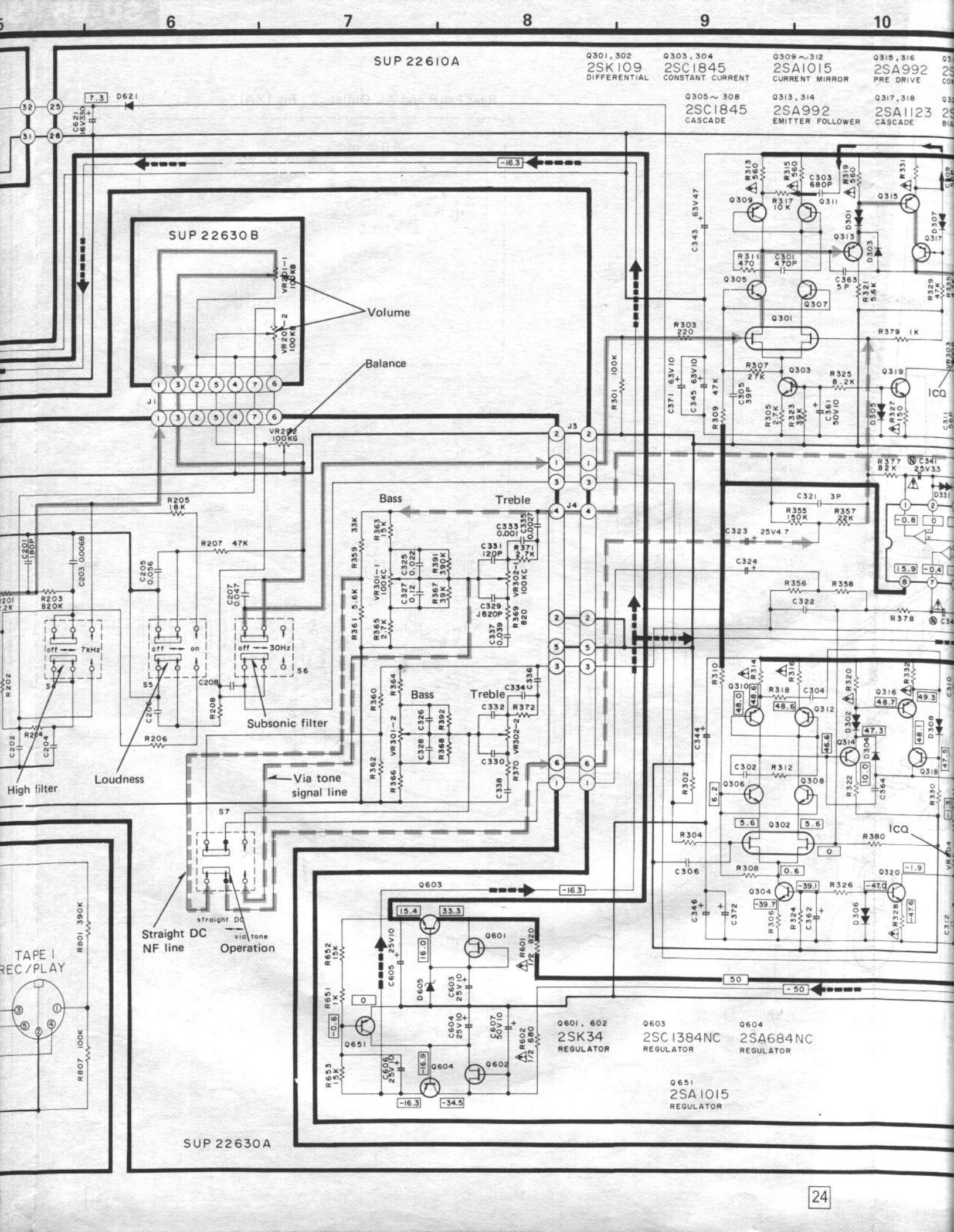
① Make the sound volume minimum.
② Connect DC voltmeter and 8Ω load to speaker terminal.
③ Make sure that output voltage is within ±30mV.

• Overload detection circuit

① Connect 8Ω load to "main" speaker terminal and 5W 0.33Ω resistance to "remote" speaker terminal.
② Apply 1kHz 40mV signal to "TUNER" terminal.
③ Make the sound volume maximum.
④ With speaker selector set at main and remote, make sure that relay in the set is OFF and no output is delivered.

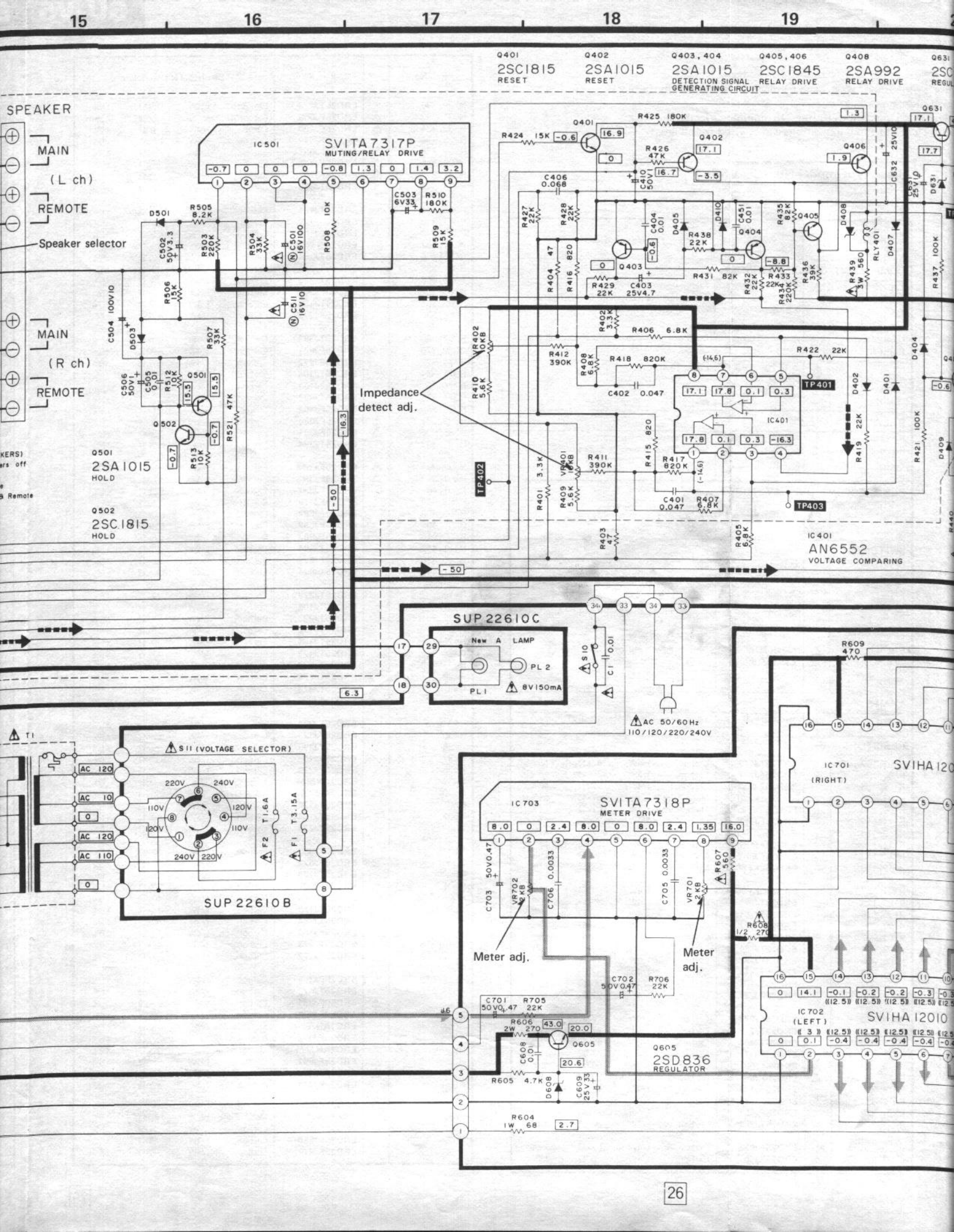
*** If protection relay turns OFF due to overload, the circuit and load will not restore their normal conditions unless power supply is once turned OFF and again turned ON.**


Phono selector
S1-2
MC
MM
J16
D623
D622
(MC)
(MM)
Q101~104
2SK170
DIFFERENTIAL
Q101
Q103
Output
S1-1
MM → MC
Phono selector
SUP22610G
IC101
SVINJM4559
EQUALIZER
Output
(L ch)
PHONO
(R ch)
PHONO
GND
(S2) ① aux ④ tape 1
② tuner ⑤ tape 2
③ phono
Input selector
S2-2
Input selector
S2-1
(L ch)
TUNER
AUX
REC OUT
TAPE 1
PLAYBACK
R803 3.9K
REC OUT
TAPE 2
PLAYBACK
(R ch)
TUNER
AUX
S3-1
S3-3
REC OUT
TAPE 1
PLAYBACK
R804 3.9K
S3-2
S3-4
REC OUT
TAPE 2
PLAYBACK
Rec mode selector
(S3) ① aux ③ phono ⑤ tape dubbing 1 ▶ 2
② tuner ④ off ⑥ tape dubbing 2 ▶ 1
J2
High filter
TAPE 1
REC/PLAY
R805 3.9K
R806 3.9K
R802 390K
R808 100K


SUP 22610A
Q301, 302 2SK109 DIFFERENTIAL
Q303, 304 2SC1845 CONSTANT CURRENT
Q309 ~ 312 2SA1015 CURRENT MIRROR
Q315, 316 2SA992 PRE DRIVE
Q305 ~ 308 2SC1845 CASCADE
Q313, 314 2SA992 EMITTER FOLLOWER
Q317, 318 2SA1123 CASCADE
SUP 22630B
Volume
Balance
Bass
Treble
Subsonic filter
High filter
Loudness
Via tone signal line
Straight DC NF line
Operation
TAPE I REC/PLAY
Q601, 602 2SK34 REGULATOR
Q603 2SC1384NC REGULATOR
Q604 2SA684NC REGULATOR
Q651 2SA1015 REGULATOR
SUP 22630A

Q315, 316	Q319, 320	Q323, 324	Q327, 328	Q331, 332	Q333, 334	Q503, 504
2SA992	2SC2631	2SC2631	2SB549	2SC2581	2SA1106	2SC1845
PRE DRIVE	CONSTANT CURRENT	CLASS A DRIVE	NEW CLASS A DRIVE	POWER	POWER	OVER LOAD DETECT
Q317, 318	Q321, 322	Q325, 326	Q329, 330			
2SA1123	2SD661	2SA1123	2SD415			
CASCADE	BIAS CONTROL	CLASS A DRIVE	NEW CLASS A DRIVE			

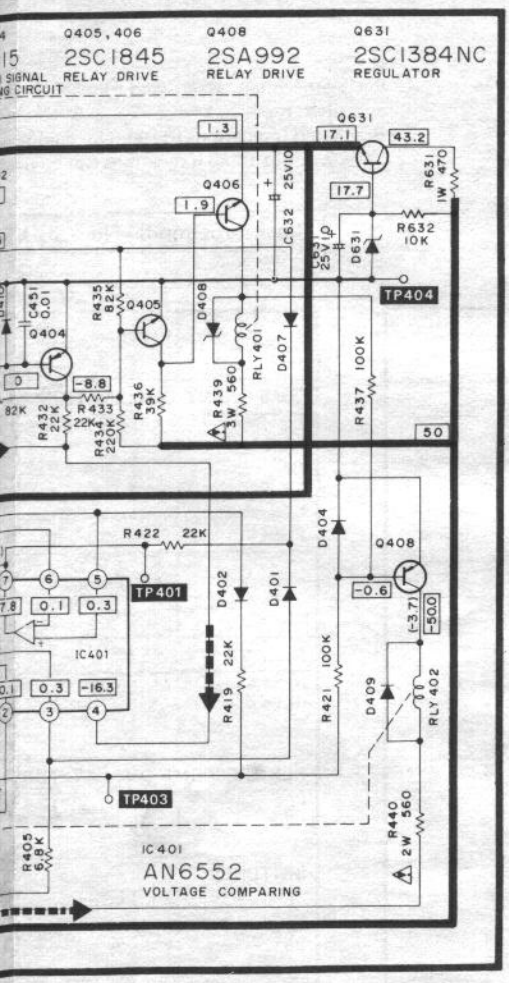
SPEAKER
MAIN (L ch)
REMOTE
MAIN (R ch)
REMOTE
Speaker selecto
S9
(MUTING)
Reset
S9 (SPEAKERS)
1 Speakers off
2 Main
3 Remote
4 Main & Remote
LFB
ICQ
IC301
AN6552
DC SERVO
TP 1
TP 2
TP 3
TP 4
Meter range
HEADPHONES
SUP 22610E
Q501
2SA
HOLD
Q502
2SC
HOLD


15
16
17
18
19
Q401 2SC1815 RESET
Q402 2SA1015 RESET
Q403, 404 2SA1015 DETECTION SIGNAL GENERATING CIRCUIT
Q405, 406 2SC1845 RELAY DRIVE
Q408 2SA992 RELAY DRIVE
SPEAKER
MAIN (L ch)
REMOTE
Speaker selector
MAIN (R ch)
REMOTE
IC501 SVITA7317P MUTING/RELAY DRIVE
Impedance detect adj.
TP401
TP402
TP403
IC401 AN6552 VOLTAGE COMPARING
Q501 2SA1015 HOLD
Q502 2SC1815 HOLD
SUP22610C
New A LAMP
PL 2
PL 1
8V150mA
AC 50/60Hz 110/120/220/240V
SUP22610B
S11 (VOLTAGE SELECTOR)
AC 120
AC 110
220V
240V
110V
120V
F2 T1.6A
F1 T3.15A
IC703 SVITA7318P METER DRIVE
Meter adj.
Meter adj.
IC701 (RIGHT) SVIHA120
IC702 (LEFT) SVIHA12010
Q605 2SD836 REGULATOR

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Refer to notes on page 18.



● **Part number of diodes**

Diode Ref. No.	Production Part No.	Standardized Part No.
D301, 302	SVDMA26-2	MA27A2
D303, 304	MA162A	←
D305~308	SVDMA26-2	MA27A2
D309~D316	OA90	20A90
D317~D320	SVDMA26-2	MA27A2
D331, 332	SVDMA26-2	MA27A2
D401, 402, 404, 405, 407, 409, 410	MA150	MA162A
D408	SVDMZ422	RVD1N4748
D501, 503	MA150	MA162A
D505, 506	MA162A	←
D601~604	SVDS3V20	SVDS3V40
D605	SVDMZ316B	←
D608	MA1200	←
D621	MA150	MA162A
D622	LN820WP	←
D623	LN420WP	←
D631	MA1180	←